

WHAT IS CLAIMED IS:

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26/1. A method of making a three-dimensional object constituted of a large number of thin preformed sheets each bonded on its opposite sides to the next adjacent sheets on its opposite sides, with each sheet cut along a contour corresponding to the contour of the respective layer constituted by the sheet in the object, the method comprising selectively applying to one side of each sheet a releasing agent effective to inhibit bonding between adjacent sheets, the releasing agent being applied selectively in a manner such that, after the sheet has been bonded to the next adjacent sheet on that side, the surface of the sheet within the respective contour is bonded to the next adjacent sheet, while the remaining portion of the respective sheet not within said contour is readily separable from the three-dimensional object.

27 b. The method according to Claim ~~1~~²⁶, wherein the side of each sheet opposite to that coated with said releasing agent is covered on its complete surface with an adhesive to promote the bonding of all said sheets to each other except where covered by said releasing agent.

28 ~~7~~. The method according to Claim ~~2~~²⁷, wherein said adhesive is applied to the under surfaces of said sheets, and said releasing agent is applied to the upper surfaces of said sheets.

29 4. The method according to Claim 2,²⁷ wherein said sheets are individually fed to and stacked on a horizontal table

which is successively lowered as the sheets are successively stacked thereon.

30 ~~1~~. The method according to Claim ~~4~~²⁹, wherein each individual sheet is coated on its upper surface outside of its respective contour with said releasing agent as the sheet is fed to said horizontal table to be stacked on top of the other sheets thereon.

31 ~~1~~. The method according to Claim ~~5~~³⁰, wherein each individual sheet is coated on its upper surface with said releasing agent by a releasing-agent applicator controlled to apply the releasing agent outside of the contour of the respective sheet while the sheet is moving.

32 ~~1~~. The method according to Claim ~~5~~³⁰, wherein each individual sheet is coated on its upper surface with said releasing agent by a moving releasing-agent applicator controlled to apply the releasing agent outside of the contour of the respective sheet while the sheet is stationary.

33 ~~1~~. The method according to Claim ~~6~~³¹, wherein each individual sheet is cut along its respective contour by a cutting tool which is driven in two dimensions to trace the respective contour while the sheet is stationary.

34 ~~1~~. The method according to Claim ~~5~~³⁰, wherein each individual sheet is coated on its complete lower surface with said adhesive as the sheet is fed to said

horizontal table to be stacked on top of the other sheets thereon.

35 / 10. The method according to Claim ~~5~~³⁰ wherein each sheet is precoated on at least one of its surfaces with said adhesive.

36 / 11. Apparatus for making a three-dimensional object constituted of a large number of thin preformed sheets each bonded on its opposite sides to the next adjacent sheets on its opposite sides, with each sheet cut by a cutting tool along a contour corresponding to the contour of the respective layer constituted by the sheet in the object, characterized in that said apparatus includes a releasing-agent applicator for selectively applying a coating on one side of each sheet, before being bonded to the next adjacent sheet on that side, of a releasing agent, said coating being selectively applied in a manner such that, after the respective sheet has been bonded to the next adjacent sheet on that side, the surface of the sheet within its respective contour is bonded to said next adjacent sheet, while the remaining portion of the respective sheet not within said contour may be readily separated from the three-dimensional object.

37 / 12. The apparatus according to Claim ~~11~~³⁶, wherein said releasing-agent applicator is located to apply said releasing agent to the upper surfaces of said sheets.

38 / 13. The apparatus according to Claim ~~12~~³⁷, wherein said apparatus further includes: a horizontal table; a feeder for feeding said sheets individually to, and stacking them on,

said horizontal table; and a drive for lowering said table as said sheets are successively stacked thereon.

a 39 14. The apparatus according to Claim ~~13~~³⁸, wherein said drive comprises a rotary motor and screws driven by said motor and coupled to the corners of said horizontal table for raising and lowering the table.

40 15. The apparatus according to Claim ~~13~~³⁸, wherein said releasing-agent applicator is located to apply said releasing agent to the upper surface of each sheet as it is fed to said horizontal table to be stacked on top of the other sheets on the table.

41 16. The apparatus according to Claim ~~13~~⁴⁰, wherein said releasing-agent applicator is controlled to apply said releasing agent outside of the contour of the respective sheet while the sheet is moving.

42 17. The apparatus according to Claim ~~13~~⁴⁰, wherein said releasing-agent applicator is movable and is driven to apply the releasing agent outside of the contours of the respective sheet while the sheet is stationary.

43 18. The apparatus according to Claim ~~13~~⁴⁰, wherein said cutting tool is driven in two dimensions to trace the respective contour of the sheet while the sheet is stationary.

44 19. The apparatus according to Claim ~~13~~⁴⁰, wherein said releasing-agent applicator and said cutting

tool are carried by a common head which is driven in two dimensions to define the contour of the respective sheet.

a1 45₂₆. The apparatus according to Claim 15, 40 wherein said apparatus further includes an adhesive applicator for applying an adhesive coating to the under surface of each sheet as it is fed to said horizontal table, to effect the bonding thereof to the underlying sheet at the portions of the underlying sheet not covered by the releasing agent.

46₂₁. A method of making a three-dimensional object constituted of a large number of thin preformed sheets each bonded on its opposite sides to the next adjacent sheets on its opposite sides, with each sheet cut along a contour corresponding to respective layer constituted by the sheet in the object. characterized in coating one side of each sheet, before being cut along its respective contour and bonded to the next adjacent sheet on that side with an activating agent that only covers the surface of the sheet within the contour of layer constituted by the respective sheet within said object such that only the surface of the sheet within its respective contour is bonded to its next adjacent sheet, permitting the remaining non-bonded portion of the respective sheet not within said contour to be separated from the next adjacent sheet and the three-dimensional object.

47₂₁. The method according to claim 21 wherein the side of each sheet opposite to that coated with said activating agent is covered on its complete surface with an adhesive that is only activated if placed into contact with an

activating agent to promote the bonding of all said sheets to each other only in areas covered with said activating agent.

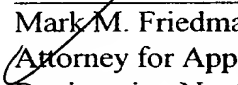
48 23. Apparatus for making a three-dimensional object constituted of a large number of thin preformed sheets each bonded on its opposite sides to the next adjacent sheets on its opposite sides with each sheet cut by a cutting tool along a contour corresponding to contour of the respective layer constituted by the sheet in the object characterized in said apparatus includes an activating agent applicator for applying a coating on one side of each sheet, before being cut along its respective contour and bonded to the next adjacent sheet on that side with an activating agent which only covers the surface of the sheet within the contour of layer constituted by the respective sheet within said object, such that, after the respective sheet has been cut and bonded to the next adjacent sheet on that side, only the surface of the sheet within its respective contour is bonded to its next adjacent sheet, permitting the remaining non-bonded portion of the respective sheet not within said contour to be separated from the next adjacent sheet and the three-dimensional object.

49 24. The apparatus according to claim 23 wherein said activating agent applicator is located to apply said activating agent to the upper surfaces of said sheets.

50 25. The apparatus according to claim 24 wherein said apparatus further includes: a horizontal table; a feeder for feeding said sheets individually to, and stacking them on,

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said horizontal table~~B~~ and a drive for lowering said table
as said sheets are successively stacked thereon.

Respectfully Submitted



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